

RECEIPT FOR DOCUMENTS FOR A PATENT APPLICATION

Documents for a patent application have been received and recorded under the provisions of the Patents Act 1977 in the name(s) shown below.

The documents bear this number which should be used on all correspondence concerning them

9019770.8

The filing date provisionally given to the application is

10 SEP 1990

Applicants:

ROSSER, Roy JONATHAN

THE DOCUMENTS RECEIVED PURPORT TO BE:

REQUEST FOR GRANT OF A PATENT ✓
DESCRIPTION ✓
CLAIMS x
DRAWINGS (No of Sheets) 1 x 3
ABSTRACT x
STATEMENT OF INVENTORSHIP (Form 7/77) x
REQUEST FOR SEARCH (Form 9/77) x
PRIORITY DOCUMENTS x
TRANSLATION OF PRIORITY DOCUMENTS x
REQUEST FOR EXAMINATION (Form 10/77) x
OTHER (Specify) x
..... x

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Address for service.

Roy Jonathan Rosser
238 Hammersmith Grove,
London
W6 7EW,

D Lowry 13/9/90
Signature & Date

Agent's Reference

BILLBOARD

P EB 3

REQUEST FOR GRANT OF A PATENT

THE GRANT OF A PATENT IS REQUESTED BY THE UNDERSIGNED ON THE BASIS OF THE PRESENT APPLICATION

I Applicant's or Agent's reference (Please insert if available)

II Title of invention **AUDIO ENHANCED ELECTRONIC BILLBOARD**

III Applicant or Applicants (See note 2)

Name (First or only applicant) **ROSSER, Roy JONATHAN**Country **USA** State **N.J.** ADP Code No.Address **105 CLARIDGE COURT, APT #2**
PRINCETON NJ 08540

Name (of second applicant, if more than one)

Country **NA** State

Address

IV Inventor (see note 3)

(a) The applicant(s) is/are the sole/joint inventor(s)
or(b) A statement on Patents Form
No 7/77 is/will be furnished

V Name of Agent (if any) (See note 4)

ADP CODE NO

VI Address for Service (See note 5)
238 HAMMERSMITH GROVE, LONDON W6 7EW, ENGLAND

VII Declaration of Priority (See note 6)

Country

Filing date

File number

NA

VIII The Application claims an earlier date under Section 8(3), 12(6), 15(4), or 37(4) (See note 7)

Earlier application or patent number **NA** and filing date **NA**

A The application contains the following number of sheet(s)

B The application is made to be accompanied by:-

1 Request	2 (TWO) Sheet(s)	1 Priority document .
2 Description	3 (THREE) Sheet(s)	Translation of priority document
3 Claim(s)	<u>1</u> Sheet(s)	3 Request for Search.....
4 Drawing(s)	1 (ONE) Sheet(s)	4 Statement of Inventorship and Right to Grant.....
5 Abstract	<u>1</u> Sheet(s)	

X It is suggested that Figure No.....1 (ONE).....of the drawings (if any) should accompany the abstract when published.

XI Signature (See note 8)

NOTES:

1. This form, when completed, should be brought or sent to the Patent Office together with the prescribed fee and two copies of the description of the invention, and of any drawings.
2. Enter the name and address of each applicant. Names of individuals should be indicated in full and the surname or family name should be underlined. The names of all partners in a firm must be given in full. Bodies corporate should be designated by their corporate name and the country of incorporation and, where appropriate, the state of incorporation within that country should be entered where provided. Full corporate details, eg a "corporation organised and existing under the laws of the State of Delaware, United States of America", trading styles, eg "trading as xyz company", nationality, and former names, eg "formerly (known as) ABC Ltd" are *not* required and should *not* be given. Also enter applicant(s) ADP Code No.(if known).
3. Where the applicant or applicants is/are the sole inventor or the joint inventors, the declaration (a) to that effect at IV should be completed, and the alternative statement (b) deleted. If, however, this is not the case the declaration (a) should be struck out and a statement will then be required to be filed upon Patent Form No 7/77.
4. If the applicant has appointed an agent to act on his behalf, the agent's name and the address of his place of business should be indicated in the spaces available at V and VI. Also insert agent's ADP Code No. (if known) in the box provided.
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8. Attention is directed to rules 90 and 106 of the Patent Rules 1982.
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10. Applicants resident in the United Kingdom are also reminded that, under the provisions of section 23 applications may not be filed abroad without written permission or unless an application has been filed not less than six weeks previously in the United Kingdom for a patent for the same invention and no direction prohibiting publication or communication has been given or any such direction has been received.

901977.8
10 Sep 1990

Rosser, PEB 9/1/90

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Audio Enhanced Electronic Billboard.

This invention relates to the display of messages and images, especially advertising, on video or television media, and especially to the enhancement of slogans or advertising artificially added into the visual stream by making the image respond to sound from the original scene.

An Electronic Billboard is a means of adding images, messages or slogans to preexisting video images in such a way that they appear to be part of original image, as described in British Patent Application 9003275.6, of February 14th, 1990 by R. Rosser and M. Leach. This addition can be done in two ways - either by "chromo-key" techniques in which a region of a particular colour or pattern is recognized and written over, or by the identification or recognition of particular features in a scene, such as the goal posts in an image of a soccer match. These features would be used to locate the position, size and perspective of an artificial electronic billboard, which would be added to the video image and appear to the end user as if it were part of the original scene.

The potential uses of such a system include advertising, especially (but not exclusively) in sporting events such as soccer or rugby where there is continuous action. By making the advertising a discrete part of the action, the game would not have to be interrupted. Additionally, the message could be changed during the game, it could be animated and it could be different for different target audiences.

This invention enhances such a system by allowing the inserted video image react to some aspect of the original scene, such as the sound. For instance, the inserted slogan could change colour, vibrate or move as the sound level from the stadium reached a certain level. Or it could have a colour which was related to the sound level, a colour "thermometer" of the sound level. In a more sophisticated version, the image change may be keyed to recognition of a particular word by the commentators. For instance the slogan could change when a particular player - or team or when the product name - is mentioned.

Such a system will greatly enhance the effectiveness of electronic billboard advertising by linking visual and audio cues. With the development of the appropriate technology the concept can be extended to include visual enhancement of the visual pattern. For instance a sophisticated pattern recognition system may recognize the presence of a particular player and use that to animate or change the inserted image in some suitable fashion.

A specific embodiment of the invention will now be described with reference to the attached drawings in which:-

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Figure 1 is a schematic view of the electronic billboard with audio enhancement.

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The television camera 10 records an image of a scene 12, which may be a tennis match. The video signal, which may be in any format, is then analyzed by computer 14, which in real time, using pattern recognition algorithms, recognizes specific marking on the court, such as the tramlines. Using these markings to scale size, position and perspective, a slogan, icon or image is then added to the video signal from a separate source 16, which may be another camera or computer or other electronic device, so that when displayed on the end users television set 18, the slogan or added image appears to be a part of the original scene. It can be made to appear as part of the background by only allowing it to key over specific colours or range of colours, such as the colour of the court in a tennis match. (Or by not keying over specific colours, such as the clothing and flesh colours of the players). Background may also or alternatively be identified by noise, contrast, or other characteristic of the original image. The resultant effect would be to have an unimpeded view of the match, with advertising discretely, yet conspicuously added. The principle could be extended to use numbers, and other objects as cues as to where to locate the electronic billboard.

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In addition the audio from the scene 12 is recorded by microphones 20 and added to the broadcast stream in the usual fashion. However by linking a suitable audio processor 22 into the audio stream from the microphone 20, the sound can be used to control some aspect of the image inserted by the insertion device 16. In the simplest embodiment the audio processor 22 would only respond to the total volume form the microphone 20, and alter the added logo according to that. For instance the colour of the logo could be keyed to the sound level, or the logo could be made to vibrate when the sound intensity reached a certain threshold. This could all be done by software control of microprocessors or by suitable electronic hardware. In a more sophisticated version, the audio processor 22 could be a voice recognition system, as are becoming routinely available. This would recognize, for instance, particular words spoken by say the commentator, and make the inserted video respond in

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75 a suitable fashion. For instance, the logo could change colour, do a flip, vibrate move or other wise change whenever the name of a particular player, team or even the product being advertised was mentioned by the commentator. It could even respond to particular words or phrases likely to be uttered by the commentator.

IX Check List (To be filled in by applicant or agent)

A The application contains the following number of sheet(s)

1 Request 2 (TWO) Sheet(s) 1 Priority document .
2 Description 6 (SIX) Sheet(s) Translation of priority document
3 Claim(s) 2 (TWO) Sheet(s) 3 Request for Search.....
4 Drawing(s) 1 (ONE) Sheet(s) 4 Statement of Inventorship and Right to Grant.....
5 Abstract 1 (ONE) Sheet(s)

B The application as filed is accompanied by:-

X It is suggested that Figure No.....ONE.....of the drawings (if any) should accompany the abstract when published.

XI Signature (See note 8)

J. R. J. ROSSER

x

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